

Claims

- [c1] An imaging tube comprising:
 - a vacuum vessel having an internal vacuum;
 - an atmospheric-side supply line assembly having an electromagnetic shield;
 - an insulator separating said internal vacuum from an external atmosphere; and
 - a cathode post residing at least partially within said vacuum vessel, said cathode post in conductive proximity with said electromagnetic shield and preventing bending of electrostatic field lines within the imaging tube.
- [c2] An imaging tube as in claim 1 wherein said cathode post comprises:
 - an outer housing; and
 - a plurality of cathode connections residing within said outer housing.
- [c3] An imaging tube as in claim 1 wherein said insulator comprises a cathode post channel and said cathode post is coupled within said cathode post channel.
- [c4] An imaging tube as in claim 1 wherein said insulator comprises:

a cathode post internal section; and
a cathode post external section.

- [c5] An imaging tube as in claim 4 wherein said cathode post internal section resides entirely within said cathode post.
- [c6] An imaging tube as in claim 1 wherein said cathode post is in contact with said atmospheric-side supply line assembly.
- [c7] An imaging tube as in claim 1 wherein said cathode post is in conductive proximity with said electromagnetic shield such that bending of said electrostatic field lines is prevented within at least one triple point area of said x-ray tube.
- [c8] An imaging tube as in claim 1 wherein said cathode post is in conductive proximity with said electromagnetic shield such that bending of said electrostatic field lines is prevented within at least one high electric field stress area of said x-ray tube.
- [c9] An imaging tube as in claim 1 wherein said electromagnetic shield prevents bending of said electrostatic field lines internal to and external from said insulator.
- [c10] An imaging tube as in claim 1 wherein said atmospheric-side supply line assembly comprises a Faraday cage that

is proximate said cathode post.

- [c11] An imaging tube as in claim 10 wherein said Faraday cage is in contact with said cathode post.
- [c12] An imaging tube as in 1 wherein said atmospheric-side supply line assembly comprises:
 - a plurality of connections; and
 - an electromagnetic shield encompassing said plurality of connections.
- [c13] An imaging tube as in claim 12 wherein said atmospheric-side supply line assembly further comprises a connector coupling said atmospheric-side supply line assembly to said vacuum vessel.
- [c14] An imaging tube as in 1 wherein said insulator comprises an insulator conducting element, said insulator conducting element residing and conducting current between said cathode post and said atmospheric-side supply line assembly.
- [c15] An imaging tube as in claim 14 wherein said insulator conducting element is in the form of a conductive ring.
- [c16] An imaging tube as in claim 14 wherein said insulator conducting element is metallic.
- [c17] An imaging tube as in claim 14 wherein said insulator

conducting element is in contact with said cathode post and said atmospheric-side supply line assembly.

- [c18] An imaging tube as in claim 14 wherein said insulator conducting element is in contact with said cathode post and said electromagnetic shield.
- [c19] An imaging tube as in claim 1 wherein said insulator is formed at least partially of a ceramic material.
- [c20] An imaging system comprising:
 - an imaging tube comprising;
 - a vacuum vessel having an internal vacuum;
 - an atmospheric-side supply line assembly having an electromagnetic shield;
 - an insulator separating said internal vacuum from an external atmosphere; and
 - a cathode post residing at least partially within said vacuum vessel, said cathode post in conductive proximity with said electromagnetic shield and preventing bending of electrostatic field lines within the imaging tube.
- [c21] An imaging system as in claim 20 wherein said cathode post is in conductive proximity with said electromagnetic shield such that bending of said electrostatic field lines is prevented within at least one triple point area or high electric field stress area of said x-ray tube.

- [c22] An imaging tube comprising:
 - a vacuum vessel having an internal vacuum;
 - an atmospheric-side supply line assembly having an electromagnetic shield and coupling said vacuum vessel;
 - an insulator separating said internal vacuum from an external atmosphere; and
 - a cathode post residing at least partially within said vacuum vessel, said cathode post extending substantially within said insulator, contacting said electromagnetic shield, and preventing bending of electrostatic field lines within the imaging tube.
- [c23] An imagine tube as in claim 22 wherein said electromagnetic shield prevents bending of said electrostatic field lines internal to and external from said insulator.